Idaho Department of Environmental Quality

Draft §401 Water Quality Certification

February 13, 2013

NPDES Permit Number(s): ID0020842 City of Sandpoint Wastewater Treatment Plant

Receiving Water Body: Pend Oreille River

Pursuant to the provisions of Section 401(a)(1) of the Federal Water Pollution Control Act (Clean Water Act), as amended; 33 U.S.C. Section 1341(a)(1); and Idaho Code §§ 39-101 et seq. and 39-3601 et seq., the Idaho Department of Environmental Quality (DEQ) has authority to review National Pollutant Discharge Elimination System (NPDES) permits and issue water quality certification decisions.

Based upon its review of the above-referenced permit and associated fact sheet, DEQ certifies that if the permittee complies with the terms and conditions imposed by the permit along with the conditions set forth in this water quality certification, then there is reasonable assurance the discharge will comply with the applicable requirements of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, the Idaho Water Quality Standards (WQS) (IDAPA 58.01.02), and other appropriate water quality requirements of state law.

This certification does not constitute authorization of the permitted activities by any other state or federal agency or private person or entity. This certification does not excuse the permit holder from the obligation to obtain any other necessary approvals, authorizations, or permits.

Antidegradation Review

The WQS contain an antidegradation policy providing three levels of protection to water bodies in Idaho (IDAPA 58.01.02.051).

- Tier 1 Protection. The first level of protection applies to all water bodies subject to Clean Water Act jurisdiction and ensures that existing uses of a water body and the level of water quality necessary to protect those existing uses will be maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). Additionally, a Tier 1 review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier 2 Protection. The second level of protection applies to those water bodies considered high quality and ensures that no lowering of water quality will be allowed unless deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier 3 Protection. The third level of protection applies to water bodies that have been designated outstanding resource waters and requires that activities not cause a lowering of water quality (IDAPA 58.01.02.051.03; 58.01.02.052.09).

DEQ is employing a water body by water body approach to implementing Idaho's antidegradation policy. This approach means that any water body fully supporting its beneficial uses will be considered high quality (IDAPA 58.01.02.052.05.a). Any water body not fully supporting its beneficial uses will be provided Tier 1 protection for that use, unless specific circumstances warranting Tier 2 protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection (IDAPA 58.01.02.052.05).

Pollutants of Concern

The Sandpoint Wastewater Treatment Plant (WWTP) discharges the following pollutants of concern: BOD_5, TSS, *E. coli*, chlorine, mercury, temperature, pH, phosphorus, ammonia, nitrate + nitrite, Kjeldahl nitrogen, arsenic, cadmium, total chromium, chromium VI, copper, cyanide, lead, nickel, silver, zinc and whole effluent toxicity (WET). Effluent limits have been developed for BOD_5, TSS, E. coli, chlorine, mercury and phosphorus. No effluent limits are proposed for temperature, pH, ammonia, nitrate + nitrite, Kjeldahl nitrogen, arsenic, cadmium, total chromium, chromium VI, copper, cyanide lead, nickel, silver, zinc and WET. Although these pollutants are present in detectable amounts, none of the pollutants have a reasonable potential to exceed WQS. Sandpoint WWTP intends to increase their design flow from the existing 3 MGD to 3.62 MGD.

Receiving Water Body Level of Protection

The Sandpoint Wastewater Treatment Plant (WWTP) discharges to the Pend Oreille River within the Pend Oreille River assessment unit (AU) 17010214PN002_08 (Pend Oreille Lake to Priest River). This AU has the following designated beneficial uses: cold water aquatic life, domestic water supply, primary contact recreation, salmonid spawning, agricultural and industrial water supply, wildlife habitats and aesthetics. There is no available information indicating the presence of any existing beneficial aside from those that are already designated.

The cold water aquatic life use in the Pend Oreille River AU is not fully supported due to excess total dissolved nitrogen gas and temperature (2010 Integrated Report). The primary contact recreation beneficial use has not been assessed, however, fecal coliform and E. coli monitoring from a USGS monitoring station near Newport, WA and the Sandpoint Water Treatment Plant indicate this use is fully supported (see Appendix A). As such, DEQ will provide Tier 1 protection only for the aquatic life use and Tier 2 protection, in addition to Tier 1, for the recreation beneficial use (IDAPA 58.01.02.051.02; 58.01.02.051.01).

Protection and Maintenance of Existing Uses (Tier 1 Protection)

As noted above, a Tier 1 review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the Clean Water Act, and requires demonstration that existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. In order to protect and maintain designated and existing beneficial uses, a permitted discharge must comply with narrative and numeric criteria of the Idaho WQS, as well as other provisions of the WQS such as Section 055, which addresses water quality limited waters. The numeric and narrative criteria in the WQS are set at levels that ensure protection of designated beneficial uses. The effluent limitations and associated requirements contained in the

Sandpoint Wastewater Treatment Plant (WWTP) permit are set at levels that ensure compliance with the narrative and numeric criteria in the WQS.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment. A central purpose of TMDLs is to establish wasteload allocations for point source discharges, which are set at levels designed to help restore the water body to a condition that supports existing and designated beneficial uses. Discharge permits must contain limitations that are consistent with wasteload allocations in the approved TMDL.

In the absence of a TMDL and depending upon the priority status for development of a TMDL, the WQS stipulate that either there be no further impairment of the designated or existing beneficial uses or that the total load of the impairing pollutant remains constant or decreases (IDAPA 58.01.02.055.04 and 58.01.02.055.05). Discharge permits must comply with these provisions of Idaho WQS.

As previously stated, the cold water aquatic life and salmonid spawning uses in this Pend Oreille River AU are not fully supported due to excess total dissolved nitrogen gas and temperature. TMDLs have not yet been developed for these pollutants. This discharge was found to have no reasonable potential to exceed WQS for total dissolved nitrogen gas and temperature. Because of the low temperature of the effluent and that total dissolved gas is not a pollutant found in WWTP discharges, the total load of these pollutants will remain constant, in compliance with IDAPA 58.01.02.055.04 as well as 58.01.02.051.01 and 58.01.02.052.01.

High-Quality Waters (Tier 2 Protection)

The Pend Oreille River is considered high quality for recreational uses. As such, the water quality relevant to recreational uses of the Pend Oreille River must be maintained and protected, unless a lowering of water quality is deemed necessary to accommodate important social or economic development.

To determine whether degradation will occur, DEQ must evaluate how the permit issuance will affect water quality for each pollutant that is relevant to recreational uses of the Pend Oreille River (IDAPA 58.01.02.052.05). These include the following: mercury, E. coli, zinc, nickel, cyanide, arsenic and nutrients**.** Effluent limits are set in the proposed and existing permit for all these pollutants except zinc, nickel, cyanide and arsenic (discussion follows).

For a reissued permit or license, the effect on water quality is determined by looking at the difference in water quality that would result from the activity or discharge as authorized in the current permit and the water quality that would result from the activity or discharge as proposed in the reissued permit or license (IDAPA 58.01.02.052.06.a). For a new permit or license, the effect on water quality is determined by reviewing the difference between the existing receiving water quality and the water quality that would result from the activity or discharge as proposed in the new permit or license (IDAPA 58.01.02.052.06.a).

Pollutants with Limits in the Current and Proposed Permit: E. coli

For pollutants that are currently limited and will have limits under the reissued permit, the current discharge quality is based on the limits in the current permit or license (IDAPA

58.01.02.052.06.a.i), and the future discharge quality is based on the proposed permit limits (IDAPA 58.01.02.052.06.a.ii). For the Sandpoint Wastewater Treatment Plant (WWTP) permit, this means determining the permit's effect on water quality based upon the limits for E. coli in the current and proposed permits. Table 1 provides a summary of the current permit limits and the proposed or reissued permit limits.

Effluent limits for E. coli in the proposed permit are the same as the previous permit and are protective of beneficial uses. However, the proposed increased design flow (3 mgd to 3.62 mgd) will theoretically increase the concentration of E. coli bacteria at the edge of a mixing zone. A Tier 2 analysis, however, is only required if the degradation is determined to be significant when the discharge of the pollutant will cumulatively decrease the remaining assimilative capacity by more than ten percent (Idaho Code 39-3603(2)(c)(i)). Sandpoint's new design flow will reduce the assimilative capacity of E. coli by <1%. Since this value is less than 10% of the remaining assimilative capacity, Sandpoint's new design flow is an insignificant increase and complies with IDAPA 58.01.02.052.06.a (see Appendix A for the analysis).

New Permit Limits for Pollutants Currently Discharged: Mercury, Phosphorus

When new limits are proposed in a reissued permit for pollutants in the existing discharge, the effect on water quality is based upon the current discharge quality and the proposed discharge quality resulting from the new limits. Current discharge quality for pollutants that are not currently limited is based upon available discharge quality data (IDAPA 58.01.02.052.06.a.i). Future discharge quality is based upon proposed permit limits (IDAPA 58.01.02.052.06.a.ii).

Mercury

The proposed permit for Sandpoint Wastewater Treatment Plant (WWTP) includes first time limits for mercury (Table 1). The mercury limits in the proposed permit allow for an increased load from currently permitted conditions to accommodate the facility's proposed design flow increase of 0.62 mgd. This increase will not impair beneficial uses outside of the 25% mixing zone because the new effluent limits are protective of beneficial uses. However, an increased load over currently permitted conditions requires a significance test to determine if the increase in mercury will cumulatively decrease the remaining capacity by more than ten percent (Idaho Code 39-3603(2)(c)(i)). Results of the significance test indicate that Sandpoint's new design flow will reduce the assimilative capacity of mercury by 1%. Since this value is less than 10% of the remaining assimilative capacity, Sandpoint's new design flow is an insignificant increase of mercury and complies with IDAPA 58.01.02.052.06.a (see Appendix B for the analysis).

Phosphorus

The proposed permit for Sandpoint WWTP includes first time limits for phosphorus (Table 1). The phosphorus limits in the proposed permit allow for an increased load from currently permitted conditions to accommodate the facility's proposed design flow increase of 0.62 mgd. This increase will not impair beneficial uses outside of the 43.5% mixing zone because the new effluent limits are protective of beneficial uses. However, an increased load over currently permitted conditions requires a significance test to determine if the increase in phosphorus will cumulatively decrease the remaining capacity by more than ten percent (Idaho Code 39-3603(2)(c)(i)). Results of the significance test indicate that Sandpoint's new design flow will reduce the assimilative capacity of phosphorus by 8.5%. Since this value is less than 10% of the

remaining assimilative capacity, Sandpoint's new design flow is an insignificant increase of phosphorus and will comply with IDAPA 58.01.02.052.06.a. (see Appendix C for the analysis).

Pollutants with No Limits: Arsenic, Zinc, Cyanide, Nickel

There are four pollutants of concern arsenic, zinc, cyanide and nickel relevant to Tier 2 protection of recreation that currently are not limited and for which the proposed permit also contains no limit (Table 1). For such pollutants, a change in water quality is determined by reviewing whether changes in production, treatment, or operation that will increase the discharge of these pollutants are likely (IDAPA 58.01.02.052.06.a.ii). With respect to arsenic, zinc, cyanide and nickel, the proposed design flow increase from 3 mgd to 3.62 mgd has the potential to increase these pollutants. A reasonable potential to exceed WQS analysis was performed by EPA (fact sheet Appendix F) and the result was that none of these pollutants had the potential to exceed WQS. However, an increased load over currently permitted conditions requires a significance test to determine if the increase in these metals will cumulatively decrease the remaining capacity by more than ten percent (Idaho Code 39-3603(2)(c)(i)). Results of the significance tests for each of these pollutants indicate that Sandpoint's new design flow will reduce the assimilative capacity of the Pend Oreille River by <1% for each pollutant. Since this value is less than 10% of the remaining assimilative capacity, Sandpoint's new design flow is an insignificant increase of arsenic, zinc, cyanide, and nickel and complies with IDAPA 58.01.02.052.06.a (see Appendix D for the analysis).

Table 1. Comparison of current and proposed permit limits for pollutants of concern.

Pollutant	Units	Current Permit			Proposed Permit			Change[a]
		Average Monthly Limit	Average Weekly Limit	Max Daily Limit	Average Monthly Limit	Average Weekly Limit	Max Daily Limit	
Pollutants with limits in both the current and proposed permit								
Five-Day BOD	mg/L	30	45	—	30	45	—	I[b]
	lb/day	750	1100	—	1251	1877	—	
	% removal	85%	—	—	85%	—	—	
TSS	mg/L	30	45	—	30	45	—	I
	lb/day	750	1100	—	1251	1877	—	
	% removal	85%	—	—	85%	—	—	
pH	standard units	6.5–9.0 all times			6.5–9.0 all times			NC
E. coli	no./100 mL	126	—	406	126	—	406	NC
Total Residual Chlorine	mg/L	0.45	1.1	—	0.45	—	1.1	NC
	lb/day	—	—	—	18.8	—	45.9	
Pollutants with new limits in the proposed permit								
Total Phosphorus	µg/L	1/qtr	—	Report	—	—	—	NC
	lb/day	—	—	—	100	129	—	NC
Mercury	µg/L	2/yr	—	Report	0.66	—	2.0	NC
	lb/day	—	—	—	0.028	—	0.084	
Pollutants with no limits in both the current and proposed permit								
Temperature	°C	1/day	—	Report	—	continuous		NC
Total Ammonia	mg/L	1/mo	—	Report	—	1/mo	Report	NC
Nitrate + Nitrite	mg/L	1/qtr	—	Report	—	1/qtr	Report	NC
Kjeldahl Nitrogen	mg/L	1/qtr	—	Report	—	1/qtr	Report	NC
Arsenic	µg/L	2/yr	—	Report	—	2/yr	Report	NC
Cadmium	µg/L	"	—	Report	—	"	Report	NC
Total Chromium	µg/L	"	—	Report	—	"	Report	NC
Chromium VI	µg/L	"	—	Report	—	"	Report	NC
Copper	µg/L	"	—	Report	—	"	Report	NC
Cyanide	µg/L	"	—	Report	—	"	Report	NC
Lead	µg/L	"	—	Report	—	"	Report	NC
Nickel	µg/L	"	—	Report	—	"	Report	NC
Silver	µg/L	"	—	Report	—	"	Report	NC
Zinc	µg/L	"	—	Report	—	"	Report	NC

[a] NC = no change in effluent limit from current permit; I = increase of pollutants from current permit; D = decrease of pollutants from current permit.

[b] EPA has determined that the current water quality based effluent limits for these two pollutants were unnecessary and that the increased loads of these pollutants would not violate the dissolved oxygen WQS. Since the Pend Oreille River is a Tier 1 waterbody for cold water aquatic life, pollutants significant to this use can be increased up to the WQS criteria (IDAPA58.01.02.052.07).

Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law

Mixing Zones

The Cormix model was used to examine Sandpoint WWTP's effluent plume shape and size for phosphorus under differing conditions that are typically experienced during the summer growing season. Cormix is a water quality model and decision support system designed for environmental impact assessment of mixing zones resulting from wastewater discharge from point sources. Results of the mixing zone study indicate that the phosphorus effluent plume currently does not meet limits set by the WQS for mixing zones (see Appendix E for the mixing zone study). Therefore, the draft permit effluent limits and mixing zone authorized by this 401 certification are set at levels which will not further impact beneficial uses while still allowing the facility to meet its permit limits. Pursuant to IDAPA 58.01.02.060, DEQ authorizes a mixing zone that utilizes 25% of the critical flow volumes of Pend Oreille River for ammonia, arsenic, chlorine, chromium III, chromium VI, copper, cyanide, lead, mercury, nitrate + nitrite and zinc. Additionally, DEQ authorizes a mixing zone that utilizes 43.5% of the critical flow volumes of the Pend Oreille River for phosphorus.

Other Conditions

This certification is conditioned upon the requirement that any material modification of the permit or the permitted activities—including without limitation, any modifications of the permit to reflect new or modified TMDLs, wasteload allocations, site-specific criteria, variances, or other new information—shall first be provided to DEQ for review to determine compliance with Idaho WQS and to provide additional certification pursuant to Section 401.

Right to Appeal Final Certification

The final Section 401 Water Quality Certification may be appealed by submitting a petition to initiate a contested case, pursuant to Idaho Code § 39-107(5) and the "Rules of Administrative Procedure before the Board of Environmental Quality" (IDAPA 58.01.23), within 35 days of the date of the final certification.

Questions or comments regarding the actions taken in this certification should be directed to June Bergquist, Coeur d'Alene Regional Office at 208.666.4605 or via email at june.bergquist@deq.idaho.gov .

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